SEQUENCE LISTING

<110> Mahajan, Muktar A.
Samuels, Herbert H.

<120> NIF-1 IS A NOVEL CO-TRANSDUCER THAT INTERACTS WITH AND
REGULATES THE ACTIVITY OF THE NUCLEAR HORMONE RECEPTOR
CO-ACTIVATOR, NRC

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Glu Ala Asp Asp Ser Gly Val Gly Gln Ser Ser Asp Arg Gly Ser Arg
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Ser Gln Glu Glu Val Ser Glu Ser Ser Ser Ala Asp Pro Leu Pro
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Asn Ser Tyr Leu Pro Asp Ser Ser Ser Val Ser His Gly Pro Val Ala
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Gly Val Thr Gly Gly Pro Pro Ala Leu Val His Ser Ser Ala Leu Pro
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Asp Pro Asn Met Leu Val Ser Asp Cys Thr Ala Ser Ser Ser Asp Leu
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Gly Ser Ala Ile Asp Lys Ile Ile Glu Ser Thr Ile Gly Pro Asp Leu
145   150   155   160

Ile Gln Asn Cys Ile Thr Val Thr Ser Ala Glu Asp Gly Gly Ala Glu
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Thr Thr Arg Tyr Leu Ile Leu Gln Gly Pro Asp Asp Gly Ala Pro Met
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Glu Glu Pro Asp Leu Gln Ser Leu Glu Ala Met Met Glu Val Val Val
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Val Gln Gln Phe Lys Cys Lys Met Cys Gln Tyr Arg Ser Ser Thr Lys
            260             265             270

Ala Thr Leu Leu Arg His Met Arg Glu Arg His Phe Arg Pro Val Ala
        275             280             285

Ala Ala Ala Ala Ala Ala Gly Lys Lys Gly Arg Leu Arg Lys Trp Ser
        290             295             300

Thr Ser Thr Lys Ser Gln Glu Glu Glu Gly Pro Glu Glu Glu Asp Asp
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Asp Asp Ile Val Asp Ala Gly Ala Ile Asp Asp Leu Glu Glu Asp Ser
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Asp Tyr Asn Pro Ala Glu Asp Glu Pro Arg Gly Arg Gln Leu Arg Leu
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Gln Arg Pro Thr Pro Ser Thr Pro Arg Pro Arg Arg Arg Pro Gly Arg
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Pro Arg Lys Leu Pro Arg Leu Glu Ile Ser Asp Leu Pro Asp Gly Val
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Glu Gly Glu Pro Leu Val Ser Ser Gln Ser Gly Gln Ser Pro Pro Glu
385             390             395             400

Pro Gln Asp Pro Glu Ala Pro Ser Ser Ser Gly Pro Gly His Leu Val
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Leu Cys Arg Ile Cys Gly Ser Arg Phe Leu Ser His Glu Asp Leu Arg
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Met Phe Asn His Val Gly Ser Lys Pro Tyr Lys Cys Asp Glu Cys Ser
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Tyr Thr Ser Val Tyr Arg Lys Asp Val Ile Arg His Ala Ala Val His
545   550   555   560

Ser Arg Asp Arg Lys Lys Arg Pro Asp Pro Thr Pro Lys Leu Ser Ser
                565   570   575

Phe Pro Cys Pro Val Cys Gly Arg Val Tyr Pro Met Gln Lys Arg Leu
        580   585   590

Thr Gln His Met Lys Thr His Ser Thr Glu Lys Pro His Met Cys Asp
        595   600   605

Lys Cys Gly Lys Ser Phe Lys Lys Arg Tyr Thr Phe Lys Met His Leu
        610   615   620

Leu Thr His Ile Gln Ala Val Ala Asn Arg Arg Phe Lys Cys Glu Phe
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Cys Glu Phe Val Cys Glu Asp Lys Lys Ala Leu Leu Asn His Gln Leu
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Ser His Val Ser Asp Lys Pro Phe Lys Cys Ser Phe Cys Pro Tyr Arg
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Thr Phe Arg Glu Asp Phe Leu Leu Ser His Val Ala Val Lys His Thr
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Gly Ala Lys Pro Phe Ala Cys Glu Tyr Cys His Phe Ser Thr Arg His
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5

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Ala Ala Pro Gly Pro Pro Pro Ser Ser Pro Gly Pro Pro Glu Ile Pro
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Pro Glu Ala Thr Thr Phe Gln Ser Ser Glu Ala Pro Ser Leu Leu Cys
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Ser Asp Thr Leu Gly Gly Ala Thr Ile Ile Tyr Gln Gln Gly Ala Glu
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Glu Ser Thr Ala Met Ala Thr Gln Thr Ala Leu Asp Leu Leu Leu Asn
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Met Ser Ala Gln Arg Glu Leu Gly Gly Thr Ala Leu Gln Val Ala Val
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Val Lys Ser Glu Asp Val Glu Ala Gly Leu Ala Ser Pro Gly Gly Gln
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Pro Ser Pro Glu Gly Ala Thr Pro Gln Val Val Thr Leu His Val Ala
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Leu Pro Gln Ile Thr Leu Ala Pro Gly Pro Phe Gly Gly Thr Gly Tyr
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Ser Val Ile Thr Ala Pro Pro Met Glu Glu Gly Thr Ser Ala Pro Gly
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Thr Pro Tyr Ser Glu Glu Pro Ala Gly Glu Ala Ala Gln Ala Val Val
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Val Ser Asp Thr Leu Lys Glu Ala Gly Thr His Tyr Ile Met Ala Thr
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Pro Ala Thr Ser Lys Ala Leu Gly Leu Ala Val Pro Pro Ser Pro Pro
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Ser Ala Ala Thr Ala Ala Ser Lys Lys Phe Ser Cys Lys Ile Cys Ala
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Glu Ala Phe Pro Gly Arg Ala Glu Met Glu Ser His Lys Arg Ala His
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Ala Gly Pro Gly Ala Phe Lys Cys Pro Asp Cys Pro Phe Ser Ala Arg
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Gln Trp Pro Glu Val Arg Ala His Met Ala Gln His Ser Ser Leu Arg
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Pro His Gln Cys Ser Gln Cys Ser Phe Ala Ser Lys Asn Lys Lys Asp
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Leu Arg Arg His Met Leu Thr His Thr Lys Glu Lys Pro Phe Ala Cys
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His Leu Cys Gly Gln Arg Phe Asn Arg Asn Gly His Leu Lys Phe His
                1125   1130   1135

Ile Gln Arg Leu His Ser Pro Asp Gly Arg Lys Ser Gly Thr Pro Thr
            1140   1145   1150

Ala Arg Ala Pro Thr Gln Thr Pro Thr Gln Thr Ile Ile Leu Asn Ser
            1155   1160   1165

Asp Asp Glu Thr Leu Ala Thr Leu His Thr Ala Leu Gln Ser Ser His
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Gly Val Leu Gly Pro Glu Arg Leu Gln Gln Ala Leu Ser Gln Glu His
1185   1190   1195   1200

Ile Ile Val Ala Gln Glu Gln Thr Val Thr Asn Gln Glu Glu Ala Ala
            1205   1210   1215

7

Tyr Ile Gln Glu Ile Thr Thr Ala Asp Gly Gln Thr Val Gln His Leu
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Val Thr Ser Asp Asn Gln Val Gln Tyr Ile Ile Ser Gln Asp Gly Val
        1235   1240   1245

Gln His Leu Leu Pro Gln Glu Tyr Val Val Val Pro Glu Gly His His
     1250   1255   1260

Ile Gln Val Gln Glu Gly Gln Ile Thr His Ile Gln Tyr Glu Gln Gly
1265   1270   1275   1280

Ala Pro Phe Leu Gln Glu Ser Gln Ile Gln Tyr Val Pro Val Ser Pro
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Gly Gln Gln Leu Val Thr Gln Ala Gln Leu Glu Ala Ala Ala His Ser
        1300   1305   1310

Ala Val Thr Ala Val Ala Asp Ala Ala Met Ala Gln Ala Gln Gly Leu
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Phe Gly Thr Asp Glu Thr Val Pro Glu His Ile Gln Gln Leu Gln His
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Arg Ser Gln Glu Glu Val Ser Glu Ser Ser Ser Ser Ala Asp Pro Leu

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Pro Asn Ser Tyr Leu Pro Asp Ser Ser Ser Val Ser His Gly Pro Val
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Ala Gly Val Thr Gly Gly Pro Pro Ala Leu Val His Ser Ser Ala Leu
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Pro Asp Pro Asn Met Leu Val Ser Asp Cys Thr Ala Ser Ser Ser Asp
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Leu Gly Ser Ala Ile Asp Lys Ile Ile Glu Ser Thr Ile Gly Pro Asp
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Leu Ile Gln Asn Cys Ile Thr Val Thr Ser Ala Glu Asp Gly Gly Ala
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Glu Thr Thr Arg Tyr Leu Ile Leu Gln Gly Pro Asp Asp Gly Ala Pro
                165   170   175

Met Thr Ser Pro Met Ser Ser Ser Thr Leu Ala His Ser Leu Ala Ala
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Ile Glu Ala Leu Ala Asp Gly Pro Thr Ser Thr Ser Thr Cys Leu Glu
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Ala Gln Gly Gly Pro Ser Ser Pro Val Gln Leu Pro Pro Ala Ser Gly
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Ala Glu Glu Pro Asp Leu Gln Ser Leu Glu Ala Met Met Glu Val Val
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Val Val Gln Gln Phe Lys Cys Lys Met Cys Gln Tyr Arg Ser Ser Thr
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Lys Ala Thr Leu Leu Arg His Met Arg Glu Arg His Phe Arg Pro Val
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Ala Ala Ala Ala Ala Ala Ala Gly Lys Lys Gly Arg Leu Arg Lys Trp
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Ser Thr Ser Thr Lys Ser Gln Glu Glu Glu Gly Pro Glu Glu Glu Asp
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Ser Asp Tyr Asn Pro Ala Glu Asp Glu Pro Arg Gly Arg Gln Leu Arg

Leu Gln Arg Pro Thr Pro Ser Thr Pro Arg Pro Arg Arg Arg Pro Gly
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Arg Pro Arg Lys Leu Pro Arg Leu Glu Ile Ser Asp Leu Pro Asp Gly
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Val Glu Gly Glu Pro Leu Val Ser Ser Gln Ser Gly Gln Ser Pro Pro
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Glu Pro Gln Asp Pro Glu Ala Pro Ser Ser Ser Gly Pro Gly His Leu
385   390   395   400

Val Ala Met Gly Lys Val Ser Arg Thr Pro Val Glu Ala Gly Val Ser
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Gln Ser Asp Ala Glu Asn Ala Ala Pro Ser Cys Pro Asp Glu His Asp
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Thr Leu Pro Arg Arg Arg Gly Arg Pro Ser Arg Arg Phe Leu Gly Lys
    435   440   445

Lys Tyr Arg Lys Tyr Tyr Tyr Lys Ser Pro Lys Pro Leu Leu Arg Pro
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Phe Leu Cys Arg Ile Cys Gly Ser Arg Phe Leu Ser His Glu Asp Leu
465   470   475   480

Arg Phe His Val Asn Ser His Glu Ala Gly Asp Pro Gln Leu Phe Lys
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Cys Leu Gln Cys Ser Tyr Arg Ser Arg Arg Trp Ser Ser Leu Lys Glu
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His Met Phe Asn His Val Gly Ser Lys Pro Tyr Lys Cys Asp Glu Cys
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Ser Tyr Thr Ser Val Tyr Arg Lys Asp Val Ile Arg His Ala Ala Val
    530   535   540

His Ser Arg Asp Arg Lys Lys Arg Pro Asp Pro Thr Pro Lys Leu Ser
545   550   555   560

Ser Phe Pro Cys Pro Val Cys Gly Arg Val Tyr Pro Met Gln Lys Arg
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Leu Thr Gln His Met Lys Thr His Ser Thr Glu Lys Pro His Met Cys

580   585   590

Asp Lys Cys Gly Lys Ser Phe Lys Lys Arg Tyr Thr Phe Lys Met His
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Leu Leu Thr His Ile Gln Ala Val Ala Asn Arg Arg Phe Lys Cys Glu
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Leu Ser His Val Ser Asp Lys Pro Phe Lys Cys Ser Phe Cys Pro Tyr
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Arg Thr Phe Arg Glu Asp Phe Leu Leu Ser His Val Ala Val Lys His
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Thr Gly Ala Lys Pro Phe Ala Cys Glu Tyr Cys His Phe Ser Thr Arg
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His Lys Lys Asn Leu Arg Leu His Val Arg Cys Arg His Ala Ser Ser
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Phe Glu Glu Trp Gly Arg Arg His Pro Glu Glu Pro Pro Ser Arg Arg
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Arg Pro Phe Phe Ser Leu Gln Gln Ile Glu Glu Leu Lys Gln Gln His
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Ser Ala Ala Pro Gly Pro Pro Pro Ser Ser Pro Gly Pro Pro Glu Ile
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Pro Pro Glu Ala Thr Thr Phe Gln Ser Ser Glu Ala Pro Ser Leu Leu
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Cys Ser Asp Thr Leu Gly Gly Ala Thr Ile Ile Tyr Gln Gln Gly Ala
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Asn Met Ser Ala Gln Arg Glu Leu Gly Gly Thr Ala Leu Gln Val Ala
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Val Val Lys Ser Glu Asp Val Glu Ala Gly Leu Ala Ser Pro Gly Gly
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Gln Pro Ser Pro Glu Gly Ala Thr Pro Gln Val Val Thr Leu His Val

Ala Glu Pro Gly Gly Gly Ala Ala Ala Glu Ser Gln Leu Gly Pro Pro
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Asp Leu Pro Gln Ile Thr Leu Ala Pro Gly Pro Phe Gly Gly Thr Gly
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Tyr Ser Val Ile Thr Ala Pro Pro Met Glu Glu Gly Thr Ser Ala Pro
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Gly Thr Pro Tyr Ser Glu Glu Pro Ala Gly Glu Ala Ala Gln Ala Val
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Leu Leu Gln Cys Gly Gly Leu Pro Arg Asp Gly Pro Glu Pro Pro Ser
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Pro Pro Ala Thr Ser Lys Ala Leu Gly Leu Ala Val Pro Pro Ser Pro
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Pro Ser Ala Ala Thr Ala Ala Ser Lys Lys Phe Ser Cys Lys Ile Cys
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Asp Leu Arg Arg His Met Leu Thr His Thr Lys Glu Lys Pro Phe Ala

12

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His Ile Gln Arg Leu His Ser Pro Asp Gly Arg Lys Ser Gly Thr Pro
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Thr Ala Arg Ala Pro Thr Gln Thr Pro Thr Gln Thr Ile Ile Leu Asn
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Ser Asp Asp Glu Thr Leu Ala Thr Leu His Thr Ala Leu Gln Ser Ser
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His Gly Val Leu Gly Pro Glu Arg Leu Gln Gln Ala Leu Ser Gln Glu
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His Ile Ile Val Ala Gln Glu Gln Thr Val Thr Asn Gln Glu Glu Ala
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Ala Tyr Ile Gln Glu Ile Thr Thr Ala Asp Gly Gln Thr Val Gln His
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His Ile Gln Val Gln Glu Gly Gln Ile Thr His Ile Gln Tyr Glu Gln
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Gly Ala Pro Phe Leu Gln Glu Ser Gln Ile Gln Tyr Val Pro Val Ser
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14

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Ala Glu Ala Asp Asp Ser Gly Val Gly Gln Ser Ser Asp Arg Gly Ser
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Arg Ser Gln Glu Glu Val Ser Glu Ser Ser Ser Ser Ala Asp Pro Leu
65                  70                  75                      80


Pro Asn Ser Tyr Leu Pro Asp Ser Ser Ser Val Ser His Gly Pro Val
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Ala Gly Val Thr Gly Gly Pro Pro Ala Leu Val His Ser Ser Ala Leu
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Pro Asp Pro Asn Met Leu Val Ser Asp Cys Thr Ala Ser Ser Ser Asp
        115                 120                 125


Leu Gly Ser Ala Ile Asp Lys Ile Ile Glu Ser Thr Ile Gly Pro Asp
        130                 135                 140


Leu Ile Gln Asn Cys Ile Thr Val Thr Ser Ala Glu Asp Gly Gly Ala
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Glu Thr Thr Arg Tyr Leu Ile Leu Gln Gly Pro Asp Asp Gly Ala Pro
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Met Thr Ser Pro Met Ser Ser Ser Pro Ser Ser Pro Gly Pro Pro Glu
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Ile Pro Pro Glu Ala Thr Thr Phe Gln Ser Ser Glu Ala Pro Ser Leu
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Leu Cys Ser Asp Thr Leu Gly Gly Ala Thr Ile Ile Tyr Gln Gln Gly
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Ala Glu Glu Ser Thr Ala Met Ala Thr Gln Thr Ala Leu Asp Leu Leu
225                 230                 235                     240


Leu Asn Met Ser Ala Gln Arg Glu Leu Gly Gly Thr Ala Leu Gln Val
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Ala Val Val Lys Ser Glu Asp Val Glu Ala Gly Leu Ala Ser Pro Gly
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Gly Gln Pro Ser Pro Glu Gly Ala Thr Pro Gln Val Val Thr Leu His

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Val Ala Glu Pro Gly Gly Gly Ala Ala Ala Glu Ser Gln Leu Gly Pro
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Pro Asp Leu Pro Gln Ile Thr Leu Ala Pro Gly Pro Phe Gly Gly Thr
305   310   315   320

Gly Tyr Ser Val Ile Thr Ala Pro Pro Met Glu Glu Gly Thr Ser Ala
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Pro Gly Thr Pro Tyr Ser Glu Glu Pro Ala Gly Glu Ala Ala Gln Ala
        340   345   350

Val Val Val Ser Asp Thr Leu Lys Glu Ala Gly Thr His Tyr Ile Met
        355   360   365

Ala Thr Asp Gly Thr Gln Leu His His Ile Glu Leu Thr Ala Asp Gly
    370   375   380

Ser Ile Ser Phe Pro Ser Pro Asp Ala Leu Ala Ser Gly Ala Lys Trp
385   390   395   400

Pro Leu Leu Gln Cys Gly Gly Leu Pro Arg Asp Gly Pro Glu Pro Pro
            405   410   415

Ser Pro Ala Lys Thr His Cys Val Gly Asp Ser Gln Ser Ser Ala Ser
            420   425   430

Ser Pro Pro Ala Thr Ser Lys Ala Leu Gly Leu Ala Val Pro Pro Ser
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Pro Pro Ser Ala Ala Thr Ala Ala Ser Lys Lys Phe Ser Cys Lys Ile
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Cys Ala Glu Ala Phe Pro Gly Arg Ala Glu Met Glu Ser His Lys Arg
465   470   475   480

Ala His Ala Gly Pro Gly Ala Phe Lys Cys Pro Asp Cys Pro Phe Ser
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Ala Arg Gln Trp Pro Glu Val Arg Ala His Met Ala Gln His Ser Ser
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Leu Arg Pro His Gln Cys Ser Gln Cys Ser Phe Ala Ser Lys Asn Lys
    515   520   525

Lys Asp Leu Arg Arg His Met Leu Thr His Thr Lys Glu Lys Pro Phe

18

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Ala Cys His Leu Cys Gly Gln Arg Phe Asn Arg Asn Gly His Leu Lys
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Phe His Ile Gln Arg Leu His Ser Pro Asp Gly Arg Lys Ser Gly Thr
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Pro Thr Ala Arg Ala Pro Thr Gln Thr Pro Thr Gln Thr Ile Ile Leu
                    580                    585                    590

Asn Ser Asp Asp Glu Thr Leu Ala Thr Leu His Thr Ala Leu Gln Ser
                    595                    600                    605

Ser His Gly Val Leu Gly Pro Glu Arg Leu Gln Gln Ala Leu Ser Gln
            610                    615                    620

Glu His Ile Ile Val Ala Gln Glu Gln Thr Val Thr Asn Gln Glu Glu
625                    630                    635                    640

Ala Ala Tyr Ile Gln Glu Ile Thr Thr Ala Asp Gly Gln Thr Val Gln
                    645                    650                    655

His Leu Val Thr Ser Asp Asn Gln Val Gln Tyr Ile Ile Ser Gln Asp
                    660                    665                    670

Gly Val Gln His Leu Leu Pro Gln Glu Tyr Val Val Val Pro Glu Gly
            675                    680                    685

His His Ile Gln Val Gln Glu Gly Gln Ile Thr His Ile Gln Tyr Glu
            690                    695                    700

Gln Gly Ala Pro Phe Leu Gln Glu Ser Gln Ile Gln Tyr Val Pro Val
705                    710                    715                    720

Ser Pro Gly Gln Gln Leu Val Thr Gln Ala Gln Leu Glu Ala Ala Ala
                    725                    730                    735

His Ser Ala Val Thr Ala Val Ala Asp Ala Ala Met Ala Gln Ala Gln
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Gly Leu Phe Gly Thr Asp Glu Thr Val Pro Glu His Ile Gln Gln Leu
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Gln His Gln Gly Ile Glu Tyr Asp Val Ile Thr Leu Ala Asp Asp
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<213> Rat

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20

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Ser Gln Asp Arg Lys Lys Arg Pro Asp Pro Thr Pro Lys Leu Ser Ser
        35                  40                  45

Phe Pro Cys Pro Val Cys Gly Arg Val Tyr Pro Met Gln Lys Arg Leu
    50                  55                  60

Thr Gln His Met Lys Thr His Ser Thr Glu Lys Pro His Met Cys Asp
65                  70                  75                  80

Lys Cys Gly Lys Ser Phe Lys Lys Arg Tyr Thr Phe Lys Met His Leu
                85                  90                  95

Leu Thr His Ile Gln Ala Val Ala Asn Arg Arg Phe Lys Cys Glu Phe
            100                 105                 110

Cys Glu Phe Val Cys Glu Asp Lys Lys Ala Leu Leu Asn His Gln Leu
        115                 120                 125

Ser His Val Ser Asp Lys Pro Phe Lys Cys Ser Phe Cys Pro Tyr Arg
    130                 135                 140

Thr Phe Arg Glu Asp Phe Leu Leu Ser His Val Ala Val Lys His Thr
145                 150                 155                 160
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Gly Ala Lys Pro Phe Ala Cys Glu Tyr Cys His Phe Ser Thr Arg His
            165   170   175

Lys Lys Asn Leu Arg Leu His Val Arg Cys Arg His Ala Asn Ser Phe
            180   185   190

Glu Glu Trp Gly Arg Arg His Pro Glu Glu Pro Pro Ser Arg Arg Arg
            195   200   205

Pro Ile Phe Ser Leu Gln Gln Ile Glu Lys Leu Lys Gln Gln His Ser
            210   215   220

Ala Ala Pro Gly Pro Pro Leu Ser Ser Ala Gly Pro Glu Ala Pro Gln
225   230   235   240

Glu Pro Ala Pro Phe Gln Ser Pro Glu Thr Pro Pro Leu Leu Cys Pro
            245   250   255

Asp Ala Leu Gly Gly Ala Thr Ile Ile Tyr Gln Gln Gly Ala Glu Glu
            260   265   270

Ser Thr Ala Met Ala Thr Gln Thr Ala Leu Asp Leu Leu Leu Asn Met
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Ser Ala Gln Arg Glu Leu Gly Ala Thr Ala Leu Gln Val Ala Val Val
            290   295   300

Lys Ser Glu Asp Val Glu Ala Glu Leu Thr Ser Thr Ala Arg Gln Pro
305   310   315   320

Ser Ser Glu Asp Thr Thr Pro Arg Val Val Thr Leu His Val Ala Glu
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Ser Gly Ser Ser Val Ala Ala Glu Ser Gln Leu Gly Pro Ser Asp Leu
            340   345   350

Gln Gln Ile Ala Leu Pro Pro Gly Pro Phe Ser Gly Ala Ser Tyr Ser
            355   360   365

Val Ile Thr Ala Pro Pro Val Glu Gly Arg Ala Ser Ala Ser Gly Pro
            370   375   380

Pro Tyr Arg Glu Glu Pro Pro Gly Glu Ala Ala Gln Ala Val Val Val
385   390   395   400

Asn Asp Thr Leu Lys Glu Ala Gly Thr His Tyr Ile Met Ala Ala Asp
            405   410   415

22

Gly Thr Gln Leu His His Ile Glu Leu Thr Ala Asp Gly Ser Ile Ser
            420   425   430

Phe Pro Ser Pro Asp Thr Leu Ala Pro Gly Thr Lys Trp Pro Leu Leu
            435   440   445

Gln Cys Gly Gly Pro Pro Arg Asp Gly Pro Glu Val Leu Ser Pro Thr
        450   455   460

Lys Thr His His Thr Gly Gly Ser Gln Gly Ser Ser Thr Pro Pro Pro
465   470   475   480

Ala Thr Ser His Ala Leu Gly Leu Leu Val Pro His Ser Pro Pro Ser
                485   490   495

Ala Ala Ala Ser Ser Thr Lys Lys Phe Ser Cys Lys Val Cys Ser Glu
            500   505   510

Ala Phe Pro Ser Arg Ala Glu Met Glu Ser His Lys Arg Ala His Ala
        515   520   525

Gly Pro Ala Ala Phe Lys Cys Pro Asp Cys Pro Phe Ser Ala Arg Gln
        530   .535   540

Trp Pro Glu Val Arg Ala His Met Ala Gln His Ser Ser Leu Arg Pro
545   550   555   560

His Gln Cys Asn Gln Cys Ser Phe Ala Ser Lys Asn Lys Lys Asp Leu
                565   570   575

Arg Arg His Met Leu Thr His Thr Asn Glu Lys Pro Phe Ser Cys His
            580   585   590

Val Cys Gly Gln Arg Phe Asn Arg Asn Gly His Leu Lys Phe His Ile
        595   600   605

Gln Arg Leu His Ser Ile Asp Gly Arg Lys Thr Gly Thr Ser Thr Ala
    610   615   620

Arg Ala Pro Ala Gln Thr Ile Ile Leu Asn Ser Glu Glu Glu Thr Leu
625   630   635   640

Ala Thr Leu His Thr Ala Phe Gln Ser Asn His Gly Thr Leu Gly Thr
                645   650   655

Glu Arg Leu Gln Gln Ala Leu Ser Gln Glu His Ile Ile Val Ala Gln
            660   665   670

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Glu Gln Thr Val Ala Asn Gln Glu Glu Ala Thr Tyr Ile Gln Glu Ile
        675   680   685

Thr Ala Asp Gly Gln Thr Val Gln His Leu Val Thr Ser Asp Asn Gln
        690   695   700

Val Gln Tyr Ile Ile Ser Gln Asp Gly Val Gln His Leu Leu Pro Gln
705   710   715   720

Glu Tyr Val Val Val Pro Asp Gly His His Ile Gln Val Gln Glu Gly
                725   730   735

Gln Ile Thr His Ile Gln Tyr Glu Gln Gly Thr Pro Phe Leu Gln Glu
            740   745   750

Ser Gln Ile Gln Tyr Val Pro Val Ser Pro Ser Gln Gln Leu Val Thr
        755   760   765

Gln Ala Gln Leu Glu Ala Ala Ala His Ser Ala Val Thr Val Ala Asp
        770   775   780

Ala Ala Met Ala Gln Ala Gln Gly Leu Phe Gly Thr Glu Glu Ala Val
785   790   795   800

Pro Glu His Ile Gln Gln Leu Gln His Gln Gly Ile Glu Tyr Asp Val
                805   810   815

Ile Thr Leu Ser Asp Asp
            820

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<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide

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Leu Val Asn Leu Leu
  1   5

<210> 10
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide

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Ala Val Asn Ala Ala
 1   5

<210> 11
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide

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Leu Asp Leu Leu Leu
 1   5

<210> 12
<211> 122
<212> PRT
<213> Human

<400> 12
Cys Asp Lys Cys Gly Lys Ser Phe Lys Lys Arg Tyr Thr Phe Lys Met
 1   5   10   15

His Leu Leu Thr His Cys Glu Phe Val Cys Glu Asp Lys Lys Ala Leu
             20   25   30.

Leu Asn His Gln Leu Ser His Ala Thr Gln Thr Ala Leu Asp Leu Leu
             35   40   45

Leu Asn Met Ser Ala Gln Arg Glu Leu Cys Lys Ile Cys Ala Glu Ala
         50   55   60

Phe Pro Gly Arg Ala Glu Met Glu Ser His Lys Arg Ala His Cys His
 65   70   75   80

Leu Cys Gly Gln Arg Phe Asn Arg Asn Gly His Leu Lys Phe His Ile
                 85   90   95

Gln Arg Leu His Leu Asn Ser Asp Asp Glu Thr Leu Ala Thr Leu His
             100   105   110

25

Thr Ala Leu Gln Ser Ser His Gly Val Leu
          115   120

<210> 13
<211> 34
<212> PRT
<213> CHICK

<400> 13
Asp Tyr Val Thr Leu Gln Asp Leu His Ser His Val Tyr Arg Glu Ser
  1   5   10   15

Arg Asn Gly Glu Ser Gln Glu Ser His Gln Ile Met Glu Asp Gln Gly
              20   25   30

Gln Ala

<210> 14
<211> 11
<212> PRT
<213> Rat

<400> 14
Val Ser Ser Val Ile Glu Glu Glu Phe Asn Thr
  1   5   10